1:Gallin E-4,5 (1957-1958) 1966
AD5 Taiwan Hokkien AD5
Taiwan AD6
Formosa AD1

the rural people. Some forms of improved sanitation reached the rural areas through the schools and, perhaps more effectively, through the publishing of government edicts enforcing practices of sanitation. Semiannual government inspections forced villagers to clean up their houses and the villages twice a year. The inspections were carried out by the Japanese police and civil officials, and any family which did not pass the inspection was subject to fine and to reinspection, which meant that "the party was punished by having to clean up all over again." The policy of inspections instituted by the Japanese has been continued under the Nationalist Chinese regime.

During the latter part of the war, and especially after the restoration of Chinese rule to Taiwan, there was a marked increase in the incidence of disease, particularly communicable diseases. There was even a recurrence of cholera. This was a direct result of the poor living conditions brought about by the war and, with the coming of the Chinese government, a chaotic administration which was unable or unwilling to deal with health problems. However, the situation gradually began to improve after 1948 and 1949 when Taiwan became the new stronghold of the Nationalist Chinese regime. This improvement is evidenced by the general situation in the Hsin Hsing area. Beginning in the early 1950's the number of Western-style doctors practicing in the area increased. At this date, there are a number of such doctors, and the villagers consider their fees reasonable and within their means. The reason for this great increase lies in the different licensing practices of the Japanese and the Nationalist governments. Under the Japanese a man had to be a graduate of a medical school before he could practice medicine; under the Chinese government, the applicant is required only to pass a practical examination. This means that people who have worked in hospitals as aides or technicians and have had some opportunity to observe others practicing medicine may have accumulated enough knowledge to pass the examination and obtain a license. Therefore, while there are now a large number of licensed doctors practicing in the Hsin Hsing area, only a few who went to school in Japan have had formal medical training.

In addition to the great increase in the number of doctors practicing in the local area, in recent years there has also been a marked expansion in the number of private and public hospitals in the cities. These hospitals, which are sometimes very large, can accommodate many patients, house relatively modern facilities such as operating rooms, X-ray and other equipment, and provide modern drugs for patients. Although most of the patients treated in these hospitals are city people, village people sometimes go to them for treatment. They are usually referred there by a local doctor who is capable of diagnosing an illness as one requiring hospital care or who is honest enough to

4:Grajdanzev--174 S-4 . (no date) 1942 Formosans
116, 164, 171, 758

"In 1937 about 22 times as many cases of dysentery per 1,000 inhabitants, twice as many cases of typhoid fever, 9 times as many of paratyphoid, 17 times as many of scarlet fever, 3 times as many of diphtheria and 21 times as many cases of insanity were registered in Japan as in Taiwan. But this does not mean that Taiwan is a remarkably healthy place in which to live. There are more cases of epidemic diseases per 1,000 population in Taiwan than in Japan, but they are not registered because the masses of the population cannot afford to pay a physician, far less a hospital. From the official sources we know, for example, that each year out of 100-108 thousand deaths at least 9,000 are due to tuberculosis; probably far more because it is doubtful whether all cases are registered. According to the official estimates the number of tubercular persons is '80-90 thousand', but there are only 150 beds in the tuberculosis hospital for the whole island. Besides tuberculosis the island is ridden by trachoma, intestinal parasites, venereal diseases, leprosy, and malaria. Concerning the first two, official sources say only that they are 'widespread'. As to venereal diseases the chief means of their transmission is licensed and unlicensed prostitution."

4:Grajdanzev--174-175 S-4 (no date) 1942 Formosans
116, 164, 177, 548

"Before the coming of the Japanese, prostitution was practically unknown (1). In [175]

1 Franck, H. A., Glimpses of Japan and Formosa, 1924, pp. 178-181. The author quotes also the testimony of a Spanish missionary who spent many years in Formosa.

1938 out of 45,582 examinations of licensed prostitutes by the police 4.26 per cent were found to be victims of these diseases (2). Beside these licensed prostitutes (who do their

2. The officials mention that in Japan only 2.15 per cent of the prostitutes are infected.

part in contributing to the state treasury) there are an unknown number of unlicensed prostitutes who from times to time are caught and examined by the police. In 1938 more than one thousand of these were examined, 31.6 per cent of whom were infected. The difference between these two groups is explained very simply: those among the licensed who cannot be cured enter the ranks of the unlicensed."

4:Grajdanzev--175 S-4 (no date) 1942 Formosans
116, 164, 758

"According to the police investigation of 1930, there were at that time 1,084 lepers on the island, but the actual number is certainly larger. (In Korea there were 13,786 lepers in 1937, not including incipient cases, and probably this also underestimates the situation.) Only 700-800 of these are segregated."

9: Yamasaki--225 N-5 (1896-1897) 1900 Formosans
134, 164

The tributaries of the Taito-kei flow through this territory [MC: the terraced tableland in the south] like a network. The soil is very fertile; but the town of Taichū (Taiwan-fu) situated here is notorious for malaria.

10: Schumacher--223 [4] T-1 (ca. 1896) 1898 Formosans
116, 164, 175

I want to state that the extremely high mortality rate among the Chinese and the Japanese is not due to unalterable circumstances. The Japanese, to quote some figures, lost 66% of their men in the course of the campaign, who were simply victims of disease. The Japanese guard division left the rough climate of Korea in the spring equipped with winter-uniforms. This factor, combined with a scarcity of provisions following the capture of Kelung, resulted in a period of terrible suffering for the division. In spite of it all the men tried to deal with a task that was beyond their powers at this state of the game. Weakened by fevers, hunger, dysentery and long marches, the group had advanced to Tschang-hua, but was in such a pitiful condition that cholera, plague, elefantiasis, and small pox found easy victims.

10: Schumacher--223 [5] T-1 (ca. 1896) 1898 Formosans
116, 164, 361, 364

The origin, spread, and finally the endemic occurrence of illnesses are favored among the Chinese of Formosa by the layout of their towns, villages and dwellings. Nearly all the settlements have grown up in depressions which could be fed but not drained. It is true that sewers are found in all large settlements; they receive dirty water but there is no outlet for it. The water is left to evaporate and naturally infects the air. The sewers are deep ditches occupying the entire width of the narrow alleys; they are lined with tiles or planks. Add to that the fact that the Chinese are not very much concerned with bodily cleanliness, that individuals are not segregated in any way from a large group of people, that there is continued contact even at the time of contagious epidemics, and that they do not receive any medical attention, and then it becomes obvious that the origin of many illnesses should not simply be attributed to the climate of the island.

31: Hofmann--604-605 N-3 (1909) 1912 Formosans
116, 132, 164

The climate is mild and saturated with humidity; it has a soothing, lulling effect. The greatest number of rainfalls occurs in the north of Formosa (3,440 millimeters per year in Kilung), where they occur regularly throughout the year. In the south of the island there is a dry season during the winter months and a rainy season which begins about the end of May. It is, unfortunately, not possible to stamp out malaria altogether. This disease often occurs here in its most severe [605] form and is fatal after a short time. The agricultural districts, however, are dependent on the humidity which causes the miasma; for any visitor to the island, therefore, quinine is an absolute necessity.

AD1

III. PUBLIC HEALTH PROBLEMS

A. General Background

744 731 Many of the communicable diseases usually associated with a tropical and sub-tropical climate were common to Formosa until the end of the nineteenth century. At that time, Formosa was still commonly called the island of epidemics. Plague, cholera, and smallpox caused the most serious epidemics; malaria, dysentery, typhus, and pneumonia were widespread but less prevalent. The control and prevention of these diseases became a major task of the Japanese administration which took over control of the island in 1895. The activities of the health bureau were closely coordinated with the exercise of the police power. Such measures as enforced vaccination, isolation of patients, destruction of contaminated houses, elimination of rats, and strict quarantine at seaports brought quick results. Since 1920, no major epidemics have occurred on Formosa.[16] Preventive activities against venereal diseases, parasitic diseases, trachoma, tuberculosis, and leprosy were begun by the Japanese in the late 1920's. By 1942, deaths from contagious and other diseases among Chinese inhabitants of Formosa had been reduced to the following yearly rate:[17] tuberculosis, 4,834; malaria, 5,792, parasitic diseases, 5,775; tracheitis, 4,661; pneumonia, 18,922; diarrhea and intestinal inflammation, 14,789; and kidney disease, 5,993. The least results were achieved in controlling tuberculosis, malaria,

744 164

16. Shao-hsing Chen, "Population Growth and Social Change in Taiwan," Bulletin of the Department of Archeology and Anthropology, Nat'l. Taiwan Univ., Taipei, May 1955, pp. 76-103.

17. [next page]

764 parasitic diseases, pneumonia, diarrhea, and
164 intestinal inflammation, but the remarkable success in general of the health measures undertaken by the Japanese is evident in the decreased death rate during the course of the Japanese occupation.

DECLINE OF DEATH RATES DURING 1906-1942

Year	Total Population	Number of Deaths	Crude Death Rate per 1,000 pop.
1906	3,156.7	104.7	33.2
1925	4,147.5	98.0	23.6
1942	6,249.5	112.0	18.0

Source: Statistical Summary of Taiwan for the Past Fifty-one Years, Taipei, 1946, Tables 50 and 87. Crude death rates are calculated by the author.

Since the end of World War II, the most prevalent and menacing diseases have been tuberculosis, pneumonia, malaria, trachoma, leprosy, parasitic diseases, and diarrhea. Of lesser incidence are diphtheria, typhoid, smallpox, typhus, plague, cholera, and venereal diseases. Significant progress has been made since the war in controlling a number of these diseases, particularly malaria, tuberculosis, the venereal diseases, leprosy, and trachoma. Progress in this area and in the building of hospitals, expansion of

17. [from previous page] The Statistical Summary of Taiwan for the Past Fifty-one Years, Taipei, 1946, Table 91.

764 medical facilities, training of personnel and
164 distribution of medical supplies have been effected through the joint undertakings of Chinese Government, United States, and international agencies, namely, the American MSMC, American Board for Medical Aid to China, Sino-American JCRR, World Health Organization (WHO), and United Nations International Children's Emergency Fund (UNICEF). The decline in the death rate during the 1948-53 period from 14.3 to 9.5 per 1,000 population[18] is clear evidence of the advances made by these joint efforts.

B. Specific Measures

744 Malaria. The Japanese in the last years of their malaria-control program maintained 375 malaria stations throughout the island for the administration of suppressive drugs. During the war the efforts were discontinued and an epidemic broke out in the post-war years. The Malaria Eradication Program begun in 1952 under the joint sponsorship of the Provincial Government, WHO, MSMC, and JCRR, arrives at complete elimination of the disease from the island by the end of 1956. By early 1956, the program had provided direct protection against malaria to more than 5,500,000 residents of formerly malarial areas.[19] The control program is carried out through (1) continuous checking and study of malaria parasites and treatment of malaria patients in the rehabilitated 144 malaria control stations throughout the island, and (2) the planned residual spraying with DDT of all dwellings in

18. See Table 8 in chapter on Population.

19. Mutual Security Mission to China, International Cooperation Adm., The Public Health Program on Taiwan (unpublished pamphlet), Taipei, 1955, p. 6.

only to furnish their labor and then to give from their limited incomes to pay for the increasingly heavy fertilizer input that insured heavy yields three times a year from the same land. Taiwan was thus transformed into a garden island where only the most venturesome of weeds could grow. Increasing quantities of rice, sugar and tropical products were transported northward to meet the growing food deficits of Japan's increasing population.

PUBLIC HEALTH AND MEDICAL CARE

The Sanitary Bureau of the Police Department was the authority in public health. Administration and enforcement were supported by police power. In the prewar years there were about 2,000 qualified doctors. Many others were trained in Taiwan and given local licenses. At the end of the war there were some 5,000 to 6,000 local doctors, or almost one per thousand population. Since public posts and private practice were limited, many of these doctors were unemployed. In 1948 about 3,600 physicians were registered as engaged in private practice or public service. There were about 600 nurses and numerous midwives. In both these groups the majority were substandard in grade. The number of hospital beds included approximately 1,000 in the capital and perhaps 6,000 on the Island, most of them in small units. In 1948 effective hospital capacity was less than half this prewar level.

Under Japanese control plague was eliminated and cholera and smallpox became rare, although the last two recurred in 1946 to 1947. Tropical diseases are common, malaria in particular. The Japanese had a special malaria service, based on extensive blood examinations, which administered quinine to positive cases. By these means 30 to 40 per cent of the people were examined annually and malaria mortality was reduced by treatment. This suppression improved the health record temporarily, but it did not contribute to permanent amelioration. The program has since been largely discontinued.

THE INCREASE OF THE POPULATION

Population increase paralleled economic expansion. In 1905 there were 3.0 million people on the Island; in 1940, there were 5.9 million. Population thus increased 93 per cent in this 35-year period and virtually all

48: Chen E-4 (no date) 1955 ADI Formosa ADI

Hitherto the development of chemical production, heavy industry, and consumer goods industries on Taiwan had declined, but now they were earnestly promoted. This gave another impetus to social change.

8. Elimination of Epidemics

After the occupation of Taiwan, two things troubled the Japanese most: the revolts of the Taiwanese and epidemics. One branch of the Japanese expeditionary army landed on the Pescadores on March 21, 1895. By mid-May, fully 1945 people out of 6,190 were afflicted by cholera, and 1,247 died. Another branch of the expeditionary army landed on Taiwan at about the same time and was also stricken with cholera, malaria, dysentry, typhus, pneumonia, and beri-beri. Only one fifth of the total army was free from illness by the end of September (5: Vol. 2, No. 12). During the early years of the Japanese occupation epidemics spread widely, and thus, elimination of epidemics was the first administrative task for the new rulers of Taiwan.

Plague, cholera, and small-pox were three serious epidemics in Taiwan. Plague broke out in Hongkong in 1894, invaded in Taiwan two years later, and had spread to many places during the next twenty-two years. During this time more than thirty thousand people were inflicted, and twenty-four thousand died. It was wiped out in 1917 (5: Vol. 2, No. 12). The activities of extermination and prevention by police power were conspicuous. They included the isolation of patients, destruction and burning of contaminated houses, extermination of rats, quarantine at sea ports etc. Though the means adopted were harsh and cruel, they were effective. Cholera was not as serious as plague in Taiwan. A greater prevalence of cholera occured in 1902, 1912, 1913, and 1920. After 1921 the preventative arrangements were more or less completed and by the cooperation of the people and the public health system, the occurence of cholera could be closely controlled.

During the early years of Japanese occupation small-pox was a serious problem. With the enforcement of vaccination, it began to decline after 1903. Since then, except for a greater prevalence in 1918–1920, small-pox has not been a menance in Taiwan (5: Vol. 2, No. 12).

Plague was wiped out in 1917. Cholera and small-pox were under control by 1920. Since then there has been no serious problem of epidemics in Taiwan. Incidentally, the cattle pest which ravaged Taiwan from 1896 and killed more than forty thousand head of cattle, was also exterminated in 1920.[7]

Whether or not a society is menaced by epidemic is always a significant social fact. We may say that freedom from epidemics is the first step toward modernization. In Taiwan, the course of this change can be traced in the data of population change. Before 1920 the death rate was high, and it also fluctuated frequently, and the extent of fluctuation was great. This is a sign of the uncertainty of life. In fact, living in a society where epidemics constantly spread, one could not estimate in the morning what would be happen before nightfall. Fatalism, such as shown in the saying "man proposes,

Note 7: Animal Resources of Taiwan, published by the Bank of Taiwan, 1952, p. 172, p. 296.

48: Chen E-4 (no date) 1955 ADI Formosa ADI

but God disposes", "Der Mensch denkt, und Gott lenkt", "Der Mensch schaltet, Gott waltet", was fostered under such circumstances. In Taiwan there was a saying: Confucius did not accept an invitation for the next day, since he didn't know whether he would be still alive in the evening or not. Under these circumstances, the attitude of the people is always "looking backward", and planning for the future will be laughed at as utopian. Once epidemics were wiped out, the death rate not only lowered, but its fluctuation became more infrequent and of lesser extent. This is a sign of more stability of life, and thus the traditional fatalism gradually dies out. The attitude of the people changes from "looking backward" to "looking forward", and planning for the future becomes a realistic idea. Ancestor worship and all kinds of cult and ritual are the main concern of people who are always looking backward, but for the peole who are looking forward, the upbringing and education of the younger generation is the most important.

9. Prevention of Endemic Disease

Malaria was the main endemic of Taiwan. Though epidemics are disastrous enough, their prevalence is intermittent, and the extent of their devastation is not necessarily very large. In contrast, malaria creeps in slowly, destroys vitality and attacks human life directly and indirectly. From the time of the Japanese occupation (1895) until 1916, about one tenth of all the deaths in Taiwan were caused by malaria, and during this period it was always the first or second in rank among the leading causes of death. Unaccustomed to the climate of Taiwan, the Japanese in Taiwan had to pay a heavy toll to malaria. In 1899 for instance, one quarter of the total deaths of Japanese in Taiwan were caused by malaria. In 1907, under the supervision of a professor of medicine, prevention of malaria was started by a camphor manufacturing corporation in a village of southern Taiwan, and some results were obtained. Preventative activity by the government-general was started at Peito, a town near Taipei, in 1910. As it was found effective, the regulations for the prevention of malaria were enacted in 1913, and were enforced through the system of police and paochia. The area of prevalence was designated, inhabitants within the area were compelled to have a blood test, and the patients were compelled to take medicine. The use of mosquito nets, drainage, and other sanitary works were enforced. The means adopted were harsh, but the result was good. The malaria death rate began to decline after 1916, considerable improvement has been made since 1925, and as a result the crude death rate was lowered. (cf. Fig. 11).

10. Activities of Preventive Hygiene

The devastation from epidemics and malaria was great, and thus the activities for their prevention were begun first. Some simple facilities for patients of leprosy and mental disease were also provided in earlier years. Other diseases, such as tuberculosis, venereal diseases, trachoma, and parasitic diseases, did not show any serious devastation, and they were not considered as serious problems by the government. The administration in Taiwan was mainly an imitation of that in Japan. What they had

48: Chen E-4 (no date) 1955 AD1 Formosa AD1

done in Japan was adopted in Taiwan with some slight time lapse. In 1916 a hygienic survey was made in Japan, and five years later, in 1921, the same project was adopted in Taiwan. Between 1922 and 1925, and also from 1926 to 1928, an extensive hygienic survey was carried out in various parts of the island. After the results were published the planning of sanitary works was mostly based on the data of the survey.

The prevention of trachoma was started around 1926, and was most active in the 1930's. The prevention of tuberculosis began from 1932. The Association for the Prevention of Tuberculosis was organized in 1934, Regulations for the Prevention of Tuberculosis were enacted in 1938, Tuberculosis Prevention Day was initiated in 1939, and a sanatorium was constructed in most prefectures, most of them being completed in 1942–43. These activities were quite effective, and the death rate from tuberculosis declined after 1938 (cf. Fig. 11, line D.) Activities of tuberculosis prevention were started in the U. S. in 1890, and as a result, deaths from tuberculosis declined sharply. It has been pointed out by a social scientist that, though the improvement in living conditions will lower the death rate from tuberculosis, community preventive activity is also very significant (20: p. 631). It is interesting to note that, this was true both in the U. S. and in Taiwan.

The preventive activities against venereal disease, mental disease, parasitic disease, and leprosy were also started by the 1930's. For the administration of these activities, a section of preventive hygiene was added to the Health Department of the government-general in 1935. This may be taken as a sign that more emphasis was put on preventive hygiene.

11. Sanitary Facilities and Medical Personnel

Various kinds of basic sanitary facilities such as drainage, water supply, disposal of garbage and night-soil, supervision of slaughter-houses and markets, inspection of food and businesses such as barber shops, restaurants, and hotels were started rather early. These were started in the cities, particularly in the wards of the city which were largely occupied by the Japanese, and gradually extended to wider areas. The establishment of public hospitals and public doctors was also early in time. Naturally, these were established first and foremost for the benefit of the Japanese in Taiwan. Japanese business men in Taiwan had enjoyed various kinds of privileges, Japanese officers received an allowance 60% greater than that of their brothers at home, and all of them could utilize these public facilities. This was the reason why their death rate was not only lower than the death rate of Japan proper, but even comparable to that of the most advanced countries in the world.

Before the Japanese occupation there were a few hospitals operated by Christian missions. Physicians in these hospitals were the only doctors of western medicine, and other physicians were doctors who practiced Chinese medicine. Some Japanese doctors of western medicine came to Taiwan after the occupation, but their number was very small. In response to the urgent need for medical personnel, training classes for doctors and nurses were set up in Taipei Hospital in 1897. The medical training class

52:Barclay S-5 (nodate)1954 AD1 Formosa AD1

721
165 and to contend with many types of hardship not found on the mainland. As they pushed toward the island's foothills, they also suffered the consequences of many bloody incidents of violence that they provoked among aboriginal tribesmen.

164 Even in the lowlands, where activities were comparatively settled and routine, life itself was a very uncertain thing. From their environment people were subjected to attack by several kinds of fatal sickness. Through certain traditional practices they unwittingly exposed themselves to many others. The semi-tropical climate of Taiwan favored the spread of a multitude of disease-producing agents. Accustomed methods of cultivating the land—especially those having to do with the conservation of human wastes as fertilizer—encouraged the transmission of these organisms to humans.[1]

Through conditions such as these, the population harbored many body parasites and other sources of infection. As a result, many people passed their lives chronically enfeebled, and others remained constantly exposed to the onset of illness. Certain types of disease often spread over the island, restrained only by the isolation of many localities and the difficulty of travel. From time to time, some would grow to spectacular epidemics in which thousands perished. Disease even proved to be one of the best defenses that Taiwan had against attack by the troops of Western powers, and delayed the Japanese in taking control of the island.

Plague was the foremost among these epidemic diseases.[2] Taiwan was repeatedly swept by attacks of this illness, with heavy fatalities. An uncontrolled traffic of shipping from the mainland and from elsewhere in Asia, much of it illicit, made it easy to introduce infected rats and persons. Conditions of knowledge and sanitation in Taiwan were wholly inadequate to cope with the problem.[3]

Cholera was the second most important disease that occurred in epidemic proportions. Lacking knowledge or facilities to control the spread of cholera, Taiwanese sometimes suffered the full course of epidemics throughout a whole season without being able to take counter-measures.[4] Cholera also was well known and feared in the

[1] For an able popular account of some of the connections between custom and the "food cycle" that propagates these organisms, see Winfield, G. F. (1948), p. 112 ff.

[2] See Hsü Tze-wei (1946), p. 444.

[3] For some of the futile steps adopted against plague by the people, see Campbell, W. (1915), p. 77.

[4] Drinking water was usually taken from the rivers or from shallow wells, making them easily subject to pollution. See Takekoshi, Y. (1907), p. 285.

52:Barclay S-5 (no date)1954 AD1 Formosa AD1

early Western contacts with Taiwan. It all but wiped out some of the military expeditions sent there as tentative colonial ventures by European powers, and later helped to persuade the Japanese to embark on large-scale measures of control.

Malaria was ordinarily endemic in Taiwan. The moist heat, and the practice of admitting water into fields for irrigation in pools that were left to stagnate, helped to nurture the mosquitoes that spread the disease. Occasionally malaria broke out in epidemic form. It was likewise impossible to control, but was simply allowed to run its course. Even in the more fortunate years it served to undermine the strength of Taiwanese during much of the year, and probably also their resistance to other sickness.

In addition to these major diseases, Taiwanese were widely afflicted with the more common debilitating ailments that tend to shorten life and lead to complicating illnesses in Asia. Enteric diseases and internal parasites were always prevalent, as in China. Tuberculosis and venereal disease were later found to be widespread, and presumably had existed also at this earlier period. Superficial skin and eye maladies were frequent. Taiwan's position as a transshipping point in the opium trade introduced a plentiful amount of the drug for local consumption, which impaired the health of the inhabitants still further. In the census of 1905, it was found that nearly one-fifth of all Taiwanese men over age 30 were known users of opium, and there were probably others who managed to conceal the fact. As external trade increased, surreptitiously and openly, Taiwan became exposed to a wider variety of diseases and a greater number of transmitting agents from outside. At the same time, the official policy of seclusion also kept out the techniques that the West was evolving to deal with them.

These baneful health conditions added new hardships for the people who migrated to Taiwan. The risks of death thus engendered became a formidable feature of everyday living. Moreover, under the pressure of poverty many families apparently eliminated certain unwanted offspring, either through exposure or deliberate neglect. As a result, a large proportion of those who were born into the population never survived to adulthood. The dangers to life were such that probably Taiwan gained few if any people through natural increase; very high fertility was needed merely to offset the losses through death.